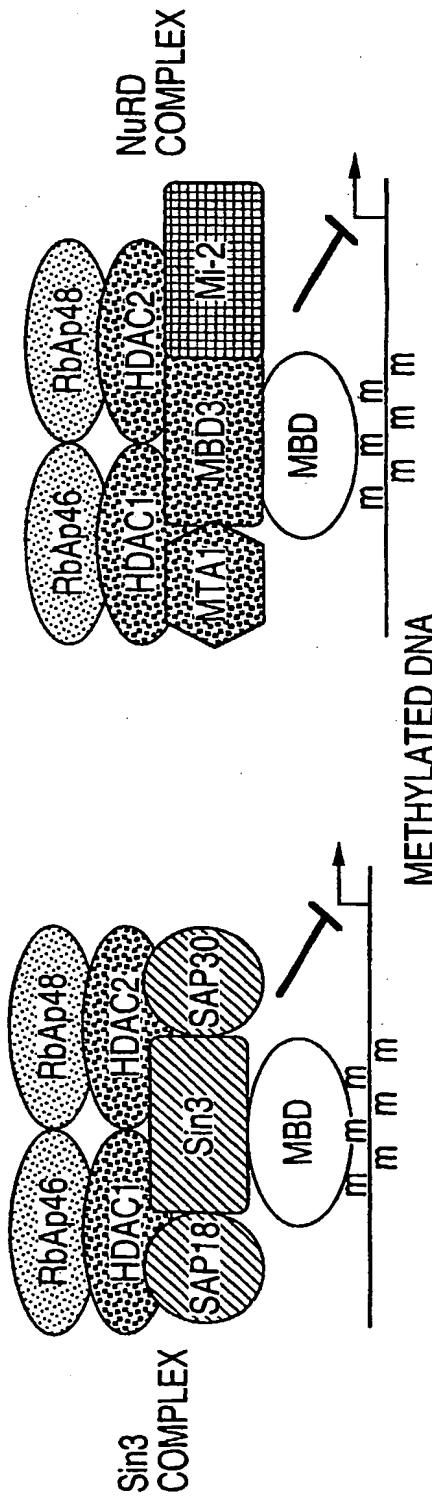


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**FIG. 1****THE ROLE OF MBD2/MBD3 IN METHYLATION-  
DEPENDENT TRANSCRIPTIONAL REPRESSION**

- MBD2 AND MeCP2 ASSOCIATE WITH Sin3, A KNOWN CORE COMPONENT IN METHYLATION-DEPENDENT TRANSCRIPTIONAL REPRESSION
- MBD3 IS A CORE COMPONENT OF THE NURD REPRESSOR COMPLEX
- MBD3 AND MBD2 ASSOCIATE *In vitro*
- MBD2 IS A COMPONENT OF THE MeCP1 REPRESSOR COMPLEX

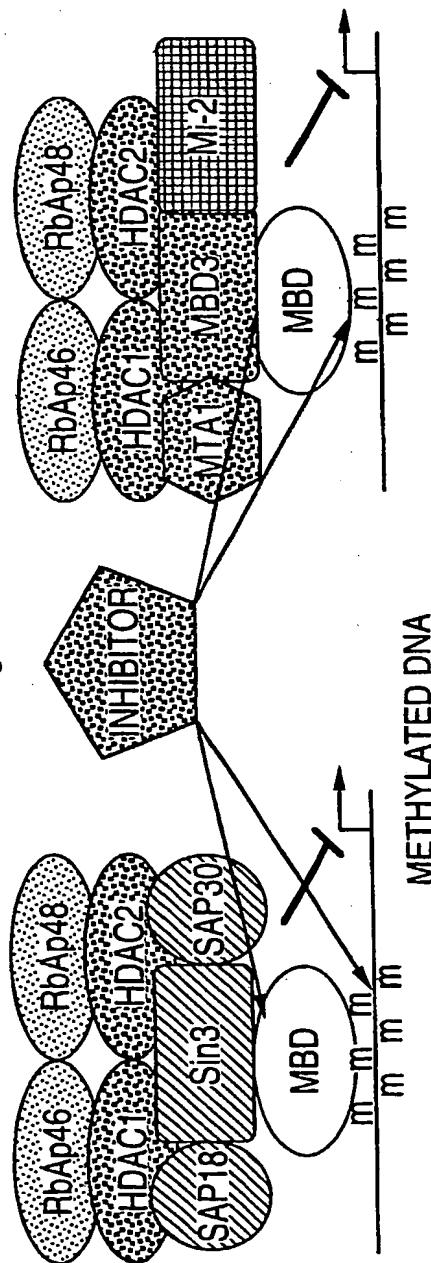
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**FIG. 2**  
**METHYLATION AS A PHARMACOLOGICAL TARGET**

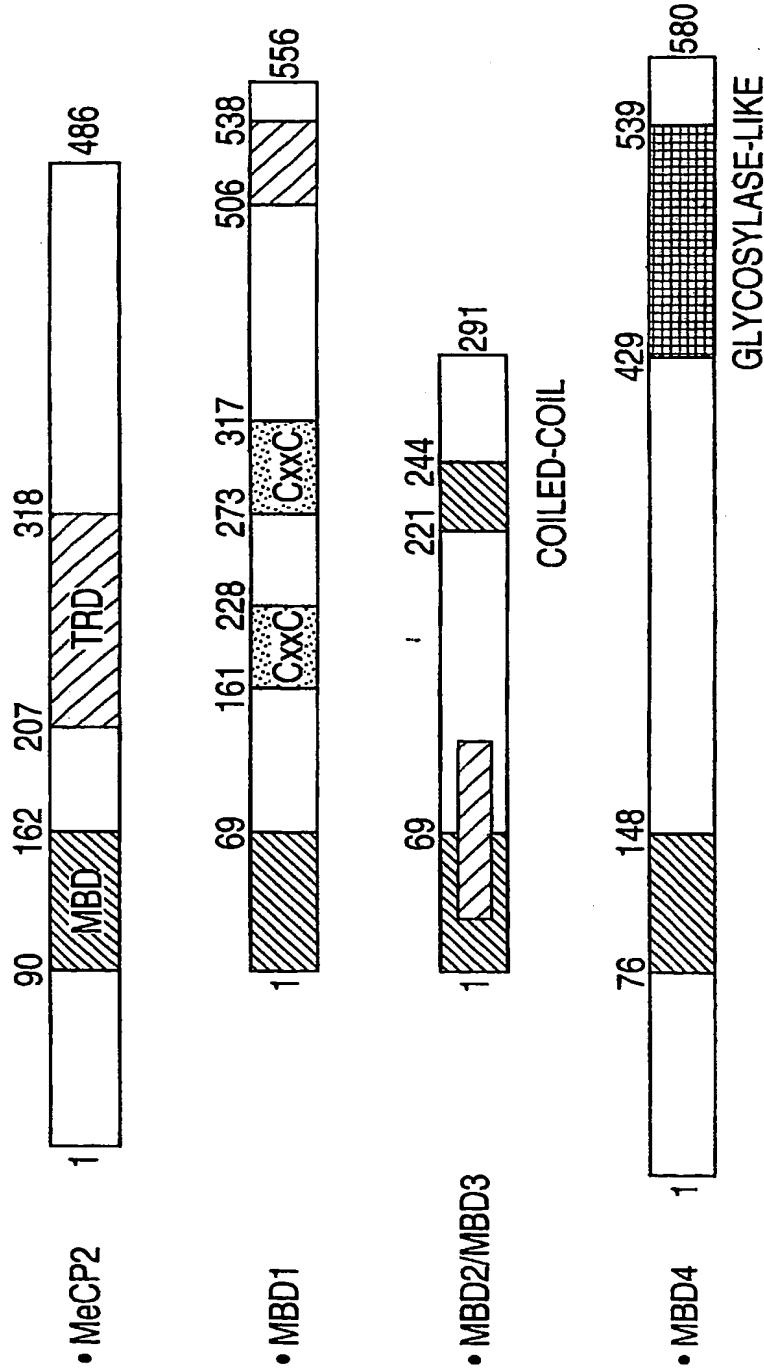
- **5-aza-2' deoxycytidine**  
-Inhibits DNA methylation

- **Potential Inhibition of MBD proteins**
  - Alternative to inhibiting DNA methylation
  - Would this cause gene reactivation?



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**FIG. 3**  
**FAMILY OF METHYL-CpG BINDING PROTEINS**



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## FIG. 4 TWO NOVEL HOMOLOGS OF MBD2

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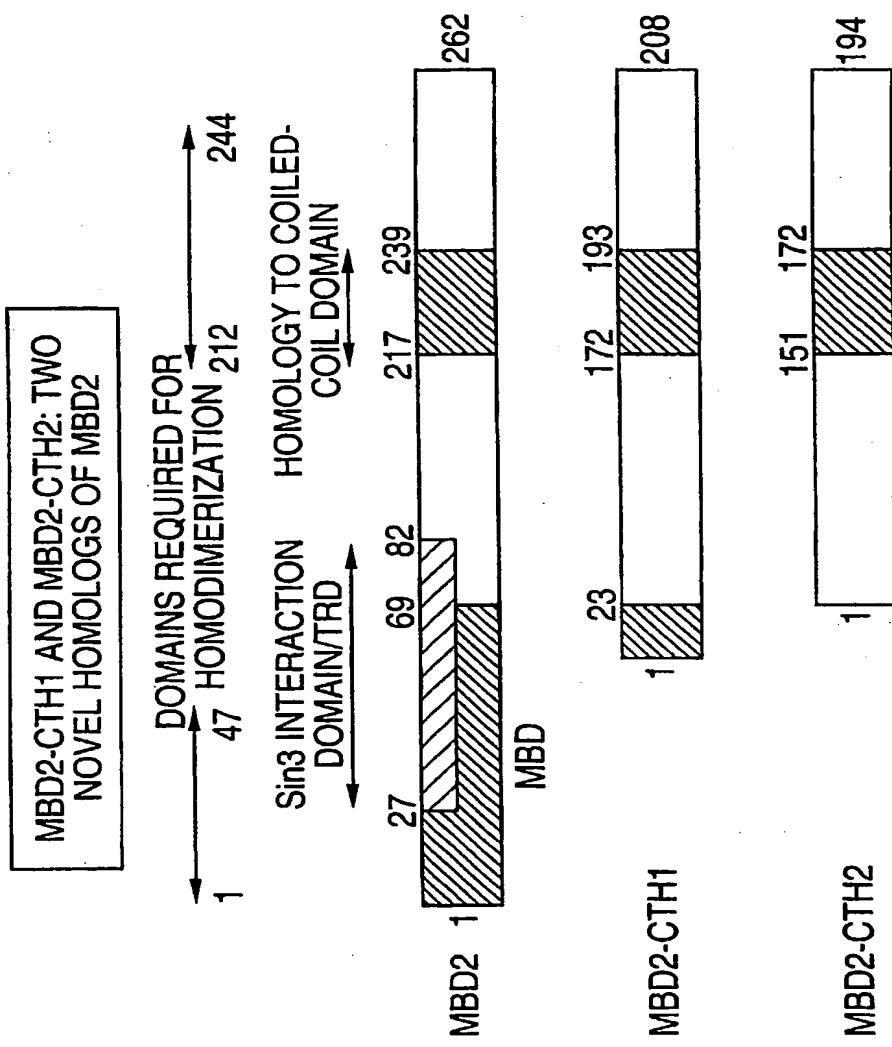
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Domain Protein 2 Homologs"  
Attorney Docket No. 38509-0016US1

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**FIG. 5**



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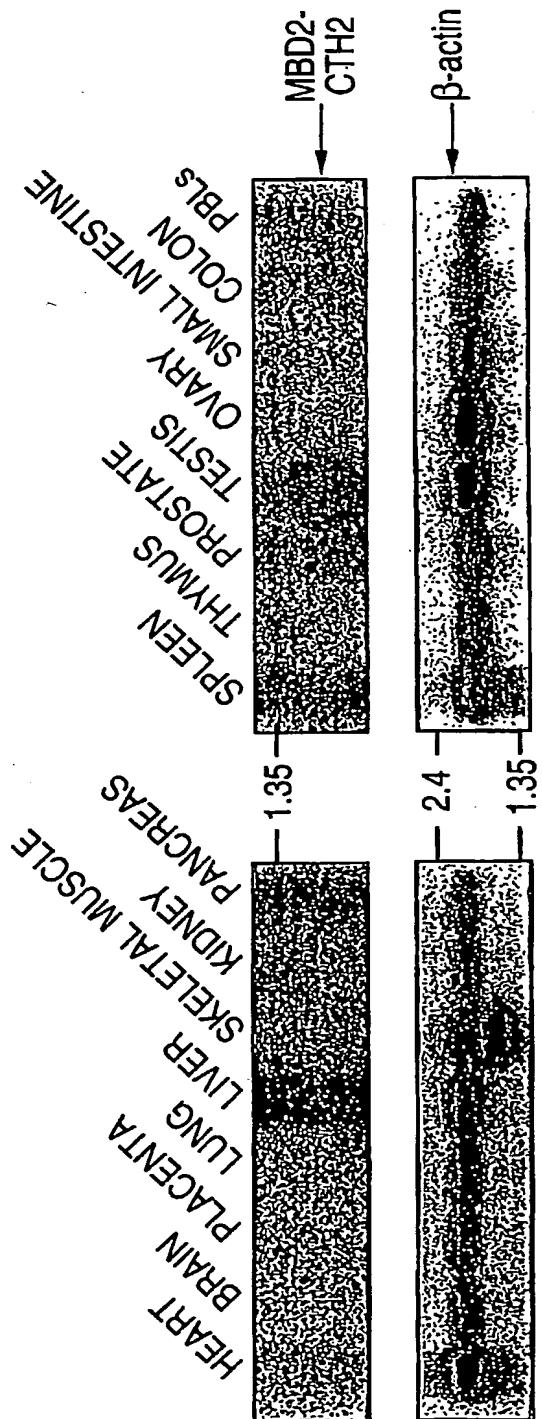
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"Methyl-CPG Binding  
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Attorney Docket No. 38509-0016US1

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**FIG. 6**  
MBD2-CTH2 RNA IS EXPRESSED IN TESTIS



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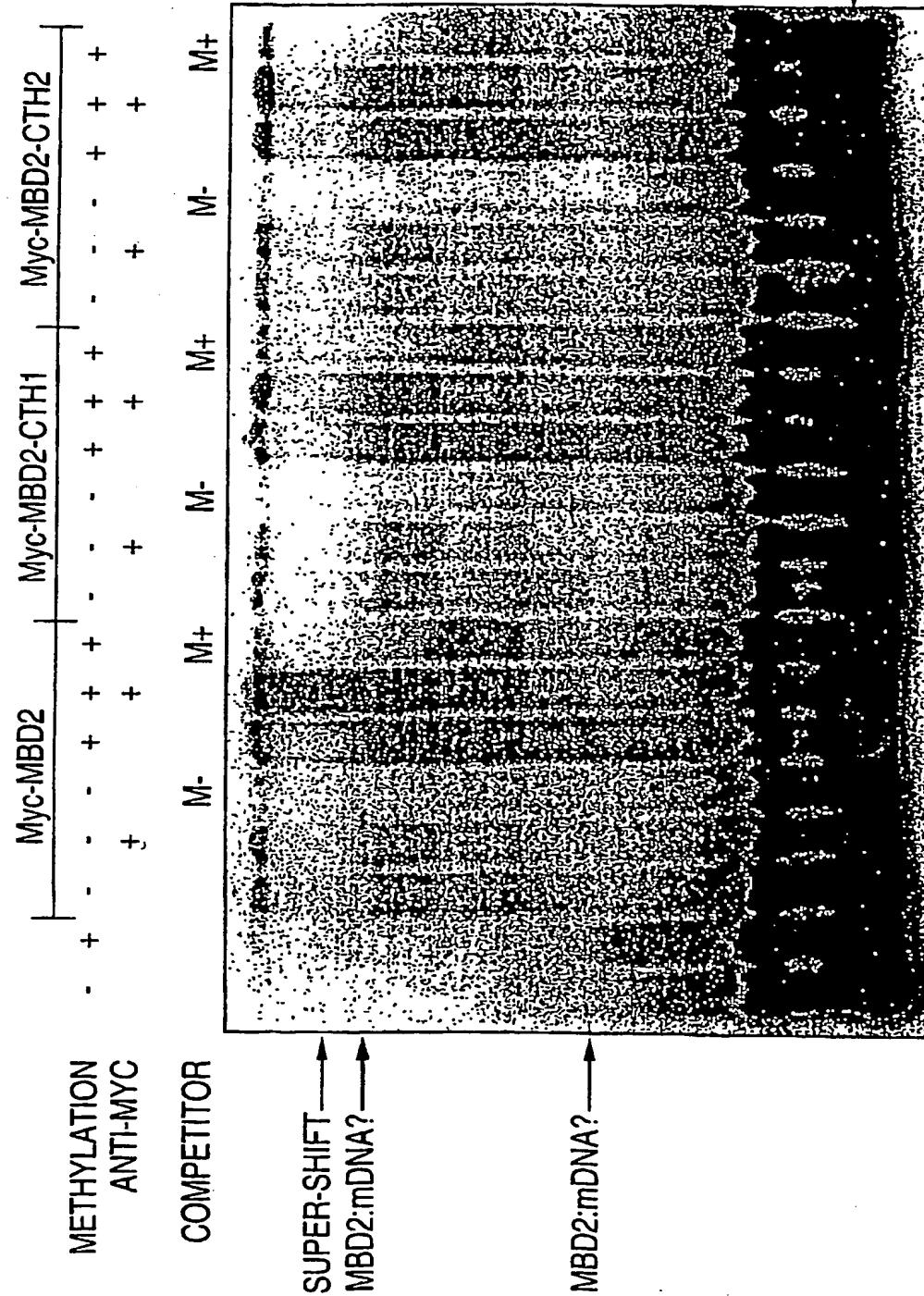
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"Methyl-CPG Binding  
Domain Protein 2 Homologs"  
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**FIG. 7**

MBD2-CTH1 AND MBD2-CTH2 DO NOT BIND  
METHYLATED DNA



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Attorney Docket No. 38509-0016US1

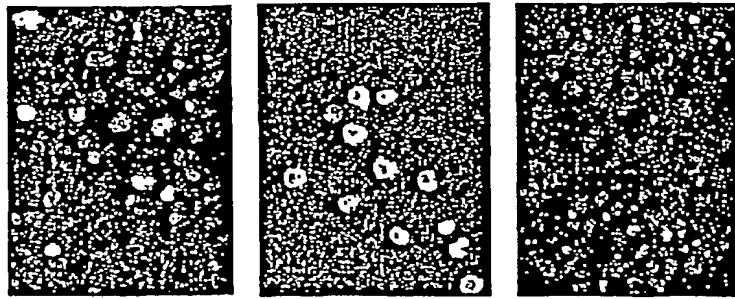
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## FIG. 8

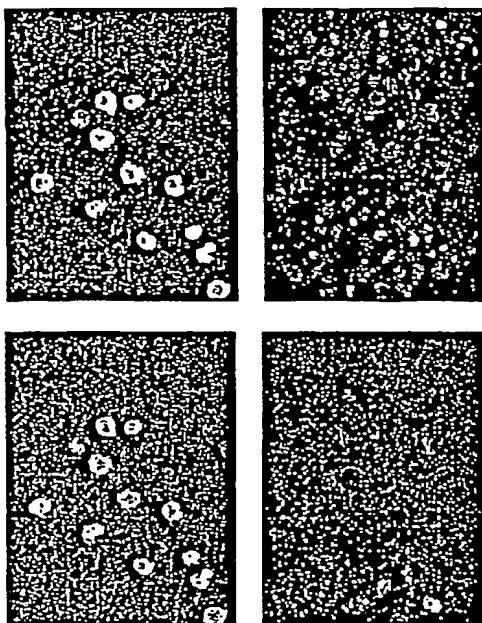
MBD2-CTH1 AND MBD2-CTH2 LOCALIZE TO THE NUCLEUS

FITC AND DAPI



FITC

FLAG-MBD2

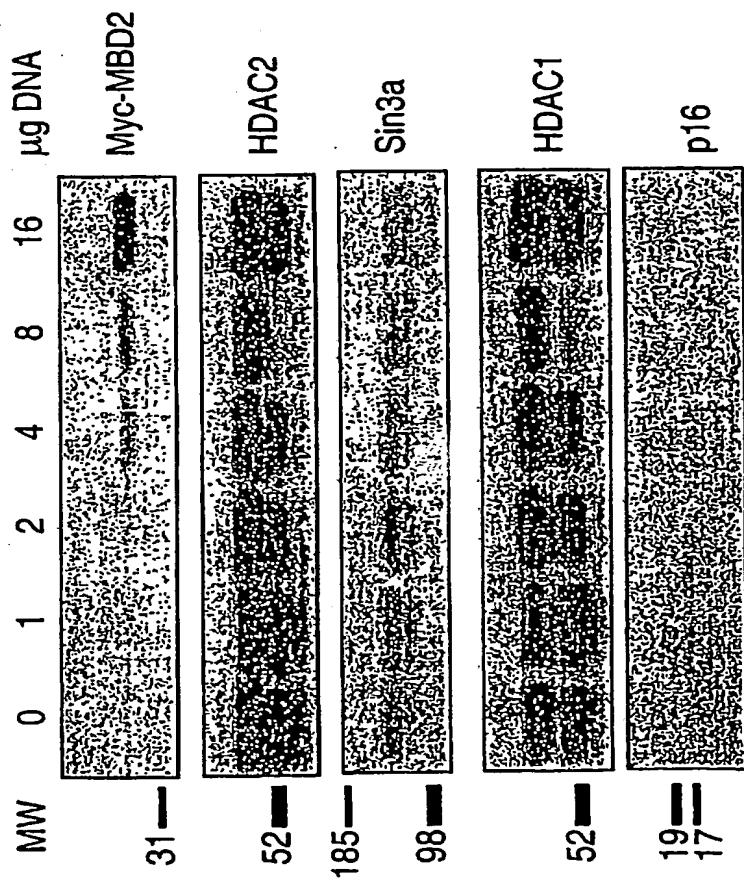


FLAG-MBD2-CTH1

FLAG-MBD2-CTH2

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**FIG. 9**  
**MBD2 ASSEMBLES INTO HDAC2 COMPLEXES**



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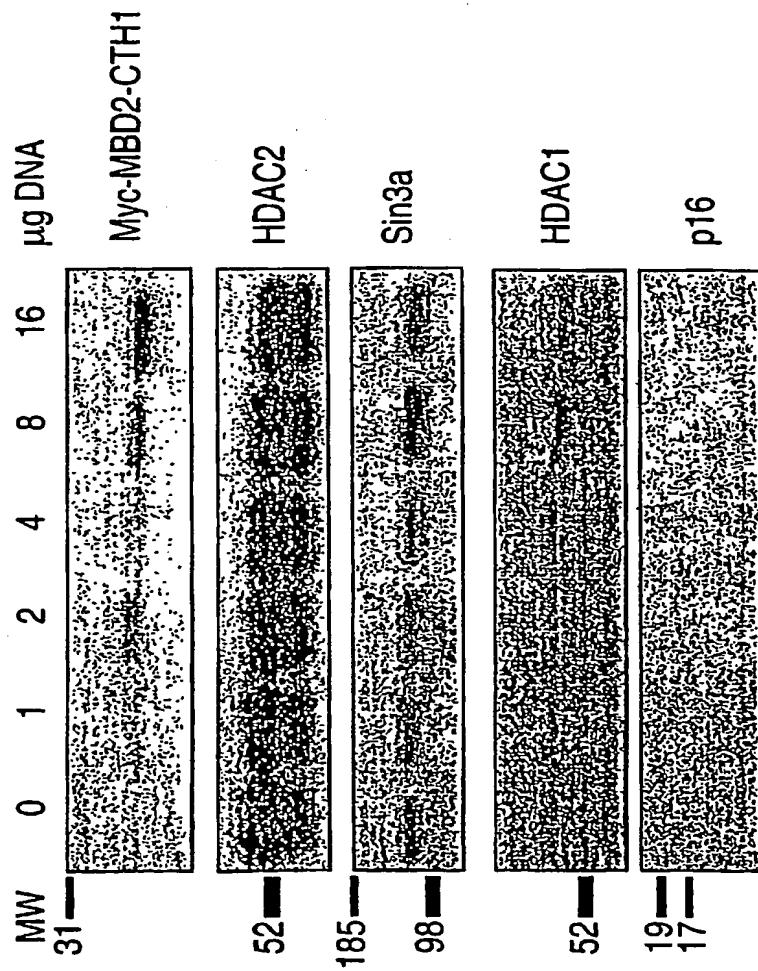
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Domain Protein 2 Homologs"  
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**FIG. 10**

**MBD2-CTH1 ASSEMBLES INTO HDAC2 COMPLEXES**

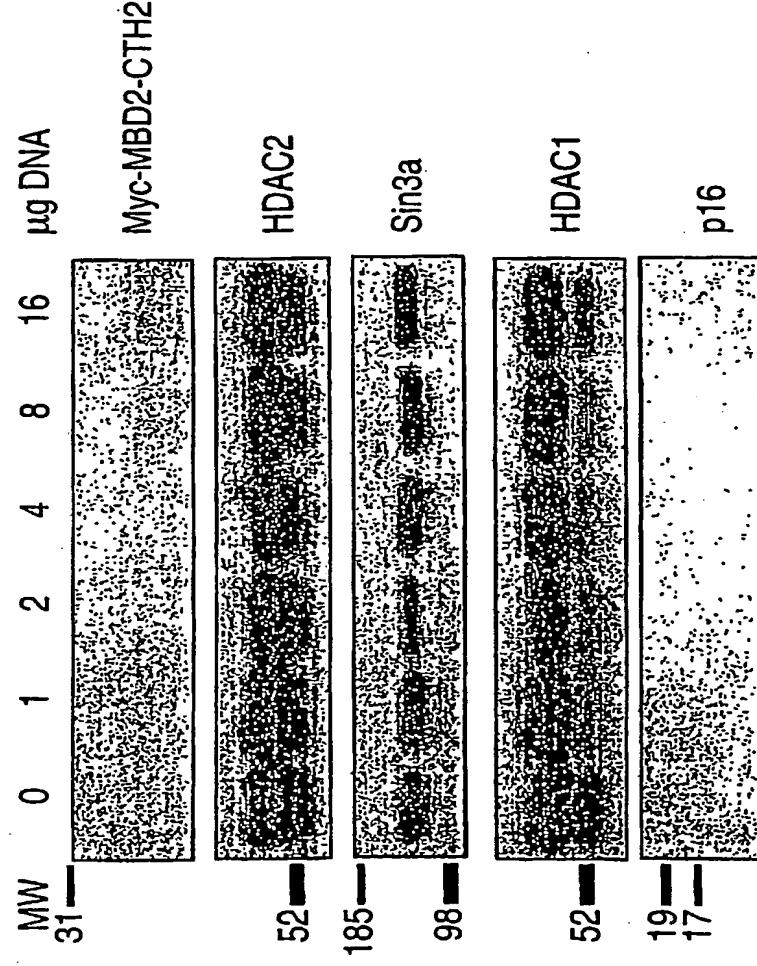


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**FIG. 11**

**MBD2-CTH2 ASSEMBLES INTO HDAC2 COMPLEXES**



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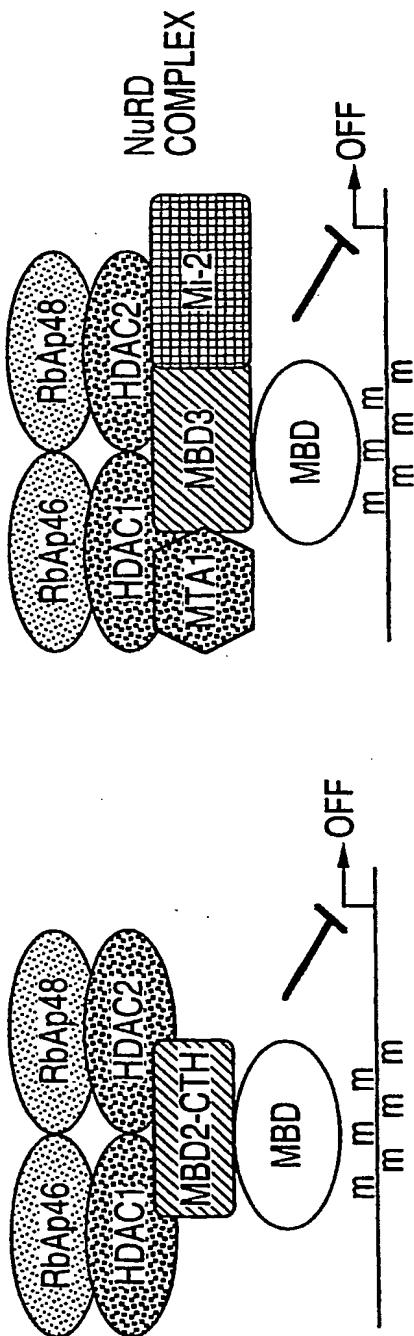
**FIG. 12****SUMMARY FOR MBD2-CTH1 AND MBD2-CTH2**

- BOTH HAVE SEQUENCE HOMOLOGY TO THE C-TERMINUS OF MBD2, BUT LACK COMPLETE MBDS.
- MBD2-CTH2 EXPRESSED IN TESTIS.
- BOTH LOCALIZE TO THE NUCLEUS.
- BOTH DO NOT BIND METHYLATED DNA DIRECTLY.
- BOTH ASSEMBLE INTO HDAC2 REPRESSOR COMPLEXES.

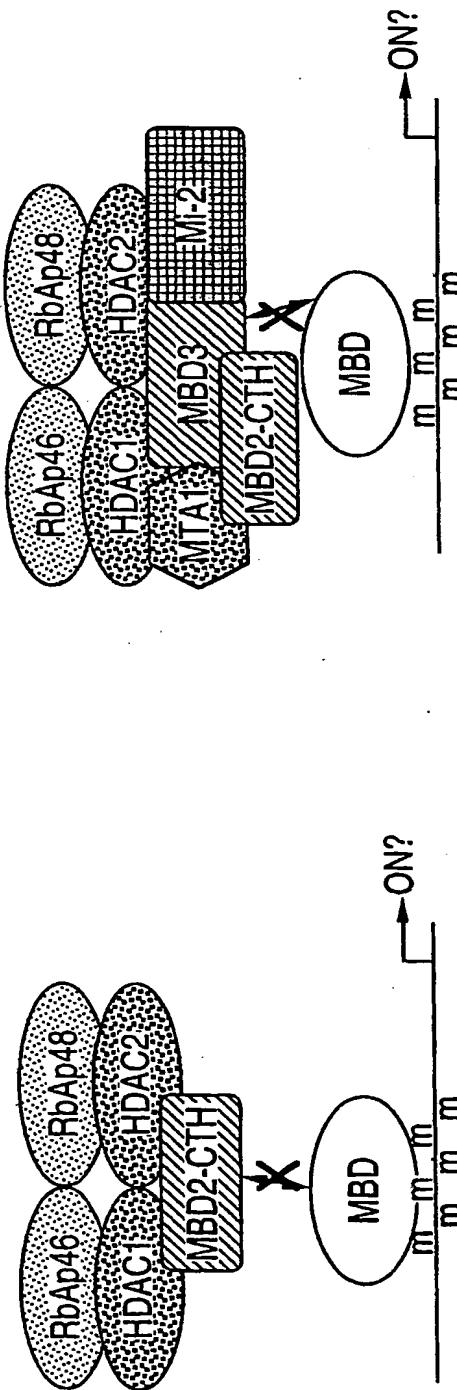
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**FIG. 13**

**MBD2-CTH1 AND MBD2-CTH2 MAY BE COMPONENTS OF REPRESSOR COMPLEXES**



**MBD2 HOMOLOGS AS DOMINANT NEGATIVE INHIBITORS**



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